



## Worksheet 1 Functions of an operating system

### Task 1

1. The memory of a computer is currently allocated as follows:

The  main is in and C main  a) mostly not in	RAM		tables show processes A, D example, are memory and virtual memory. are also memory.  Explain why stored in virtual RAM.	Virtual memory		that parts of and E, for currently in parts of each Processes B currently in  process <b>D</b> is memory and
	Process			Address	Process	
	A			1	A	
	B			2	A	
	C			3	D	
	D			4	D	
				5	D	
E		6	E			

- b) What will happen if process **D** requires data or instructions contained within the virtual memory?
- c) If process **D** needs to access data or instructions from virtual memory on a regular basis, describe how this will affect the computer's performance.
- d) State two ways the user could avoid the performance issues you discussed in part (c)

### Task 2

2. Imagine a small supermarket with one till. Customers arrive at different times, each customer has a different number of items and they get grumpy if they have to wait too long. The supermarket's aim is to keep all customers waiting for as short a time as possible.



Discuss with a partner or group:

- Which scheduling algorithm best reflects the one used by customers queuing in a supermarket? (Round Robin, First Come First Served, Shortest time remaining, Multi level feedback queues)
- Evaluate the benefits and drawbacks of using each scheduling algorithm for a supermarket queue.
  - Would any of them work better than the current system?
  - Do any of the algorithms benefit particular customers more than others? Consider when the customer arrives and how many items the customer has in their trolley.